PATENT
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Method and Apparatus for Depositing Antireflective Coating

CROSS REFERENCE TO RELATED APPLICATION

This is a continuation-in-part patent application of Application Serial No.08/567,338, filed December 5, 1995, entitled "Anti-Reflective Coating and Method for Depositing Same."

BACKGROUND OF THE INVENTION

The present invention relates to apparatus for, and the processing of, semiconductor wafers. In particular, the invention relates to the deposition of antireflective layers during wafer processing.

In the manufacture of integrated circuits, photolithographic techniques are used to define patterns for layers in an integrated circuit. Typically, such photolithographic techniques employ photoresist or other light-sensitive material. In conventional processing, the photoresist is first deposited on a wafer, and then a mask having transparent and opaque regions which embody the desired pattern, is positioned over the photoresist. When the mask is exposed to light, the transparent portions allow light to expose the photoresist in those regions, but not in the regions where the mask is opaque. The light causes a chemical reaction to occur in the exposed portions of photoresist. A suitable chemical, or a chemical vapor or ion bombardment process, then is used to selectively attack either the reacted or unreacted portions of the photoresist. With the photoresist pattern remaining on the wafer itself now acting as a mask for further processing, the integrated circuit can be subjected to additional process steps. For example, material may be deposited on the circuit, the circuit may be etched, or other known processes carried out.

In the processing of integrated circuit devices with small feature sizes, for example, feature sizes having critical dimensions less than one-half micron, sophisticated techniques involving equipment known as steppers, are used to mask and expose the photoresist. The steppers for such small geometry products generally use monochromatic